

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT

FCC ID: 2AZNT-HT10

Product: 10" Rugged Android Tablet Device
Trade Mark: ARBOR
Model Number: HT10
Family Model: G1019, H79P, HT10A, HT10B, HT10C,
HT10D, HT10E , HT10F , HT10G, HT10H,
HT10J
Report No.: S22030700909006
Issue Date: Jun 06. 2022

Prepared for

ARBOR Technology Corp.
10F., No.700, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235,
Taiwan

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
1/F, Building E, Fenda Science Park, Sanwei Community,
Xixiang Street Bao'an District, Shenzhen 518126 P.R. China
Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090
Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name : ARBOR Technology Corp.

Address..... : 10F., No.700, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan

Manufacturer's Name..... : ARBOR Technology Corp.

Address..... : 10F., No.700, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan

Product name..... : 10" Rugged Android Tablet Device

Model and/or type reference .. : HT10

Family Model..... : G1019, H79P, HT10A, HT10B, HT10C, HT10D, HT10E , HT10F , HT10G, HT10H, HT10J

Test Sample Number..... : S220307009007

Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27

Test procedure : ANSI C63.26:2015
ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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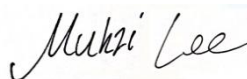
Date of Test

Date (s) of performance of tests..... Apr 12. 2022 ~ Jun 06. 2022

Date of Issue Jun 06. 2022

Test Result..... **Pass**

Testing Engineer :



(Mukzi Lee)

Authorized Signatory :



(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	10" Rugged Android Tablet Device
Trade Mark	ARBOR
Model Name	HT10
Family Model	G1019, H79P, HT10A, HT10B, HT10C, HT10D, HT10E , HT10F , HT10G, HT10H, HT10J
Model Difference	All models are the same circuitry and RF modules, except the model name.
FCC ID:	2AZNT-HT10
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,7,12,17,19 ☒ LTE TDD Band 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 19 Uplink: 830MHz-845MHz, Downlink: 875MHz-890MHz; LTE TDD Band 41 Uplink&Downlink: 2496MHz-2690MHz,(Note2)
Type of Modulation:	QPSK/16QAM
Antenna:	FPC Antenna
Antenna gain:	B2: 0.67dBi ; B4 -1.22dBi; B5 -2.28dBi; B7:1.83dBi; B12 -3.58dBi; B17 -3.58dBi; B19:-2.28dBi; B41:3.08dBi
Adapter:	Model: HJ-FC010K7-US Input: 100-240V~50/60Hz 0.6A Output: 5.0V---2.0A 9.0V---2.0A 12.0V---1.5A
Battery:	DC 3.8V, 10000mAh, 38Wh
Power supply:	DC 3.8V from battery or DC 5V from Adapter.
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.8V) (Note 1)
HW Version	HT10_MB_R0.3

SW Version	HT10_V6.0
** Note1: The High Voltage DC 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

Note2 Band 41

Bandwidth	Low		Mid		High	
[MHz]	Frequency	Channle	Frequency	Channle	Frequency	Channle
5	2557.5	40265	2593	40620	2652.5	41215
10	2560	40290	2593	40620	2650	41190
15	2562.5	40315	2593	40620	2647.5	41165
20	2565	40340	2593	40620	2645	41140

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AZNT-HT10** filing to comply with the FCC Part 22H&24E&27

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27, ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.26:2015& ANSI C63.4: 2014.

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.5dB
2	RF power, conducted	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(9KHz~30MHz)	$\pm 6\text{dB}$
5	All emissions, radiated(30MHz~1GHz)	$\pm 2.64\text{dB}$
6	All emissions, radiated(1GHz~6GHz)	$\pm 2.40\text{dB}$
7	All emissions, radiated(>6GHz)	$\pm 2.52\text{dB}$
8	Temperature	$\pm 0.5^\circ\text{C}$
9	Humidity	$\pm 2\%$

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: Band 2/4/5/7/12/17/19/41

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

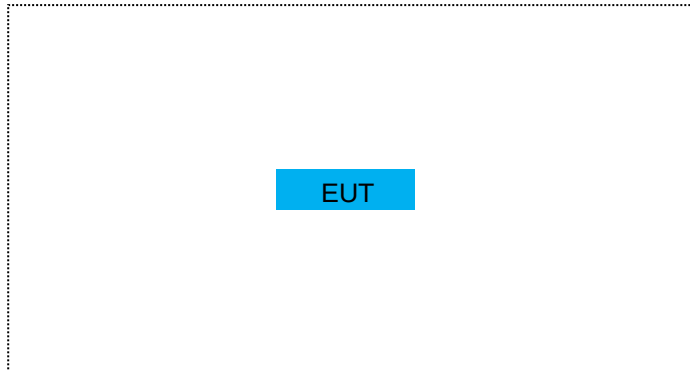
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	10" Rugged Android Tablet Device	HT10	FCC ID: 2AZNT-HT10	EUT

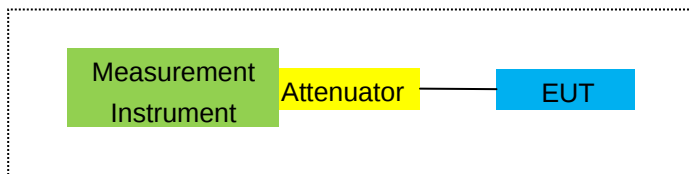
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

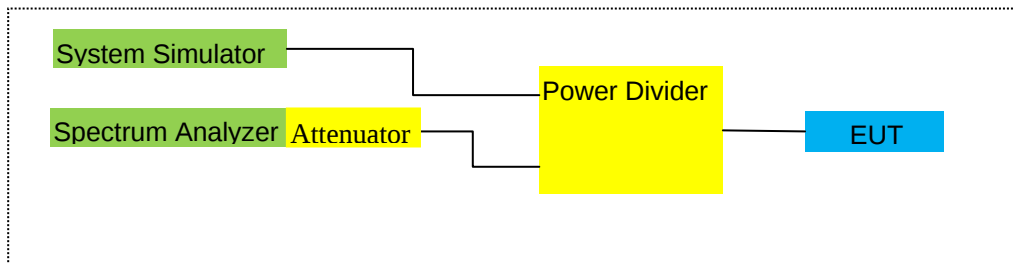
For Radiated Test Cases



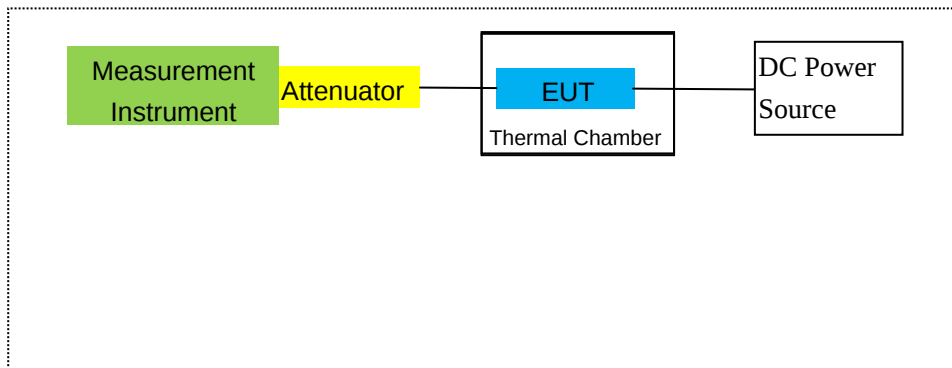
For Conducted Output Power



For Peak-to Average Ratio, Occupied Bandwidth, Conducted Band edge and Conducted Spurious Emission



For Frequency Stability



Note: EUT built-in battery-powered, the battery is fully-charged.

3.TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2022.04.01	2023.03.31	1 year
2	Test Receiver	R&S	ESPI	101318	2022.04.06	2023.04.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2023.03.30	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2022.04.06	2023.04.05	1 year
7	Amplifier	EM	EM-30180	060538	2021.07.01	2022.06.30	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2022.03.30	2023.03.29	1 year
9	Power Meter	R&S	NRVS	100696	2021.07.01	2022.06.30	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2022.04.06	2023.04.05	1 year
11	Test Cable	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
12	Test Cable	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
14	Test Receiver	R&S	ESCI	101160	2021.04.27	2022.04.26	1 year
15	LISN	R&S	ENV216	101313	2022.04.06	2023.04.05	1 year
16	LISN	EMCO	3816/2	00042990	2022.04.06	2023.04.05	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2022.04.06	2023.04.05	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2020.05.11	2023.05.10	3 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2021.07.01	2022.06.30	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2022.04.01	2023.03.31	1 year
24	test receiver	R&S	ESCI	a0304218	2022.04.06	2023.04.05	1 year
25	Communication Tester	R&S	CMU200	A0304247	2022.04.06	2023.04.05	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2022.04.06	2023.04.05	1 year
27	DC Power Source	N/A	PS-6005D	20170402923	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2021.07.01	2022.06.30	1 year
29	Communication Tester	R&S	CMW500	148500	2022.04.06	2023.04.05	1 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".3

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10, 15, 20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

☐ LTE Band 24/5/7/12/17/19/41

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Show citation box.

(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

TEST PROCEDURE

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

Set a marker to point the corresponding band edge frequency in each test case.

Set resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

- ☐ LTE Band 24/5/7/12/17/19/41

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53

LIMITS

1. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.
2. The Band 7/41 emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log (P)$ dB.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- ☐
- ☐ Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

- ☐ LTE Band 2/4/5/7/12/17/19/41
- ☐

7.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50

LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

KDB 971168 D01 Power Meas License Digital Systems v02r01, "Measurement Guidance for Certification of Licensed Digital Transmitters"

MODES TESTED

☐ LTE Band 2/4/5/7/12/17/19/41

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-2.59	3.76	28.24	21.89	154.525	Horizontal	Pass
		1880	-2.41	3.91	28.22	21.90	154.882	Horizontal	Pass
		1909.3	-2.31	3.93	28.20	21.96	157.036	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.54	3.77	28.23	21.92	155.597	Horizontal	Pass
		1880	-2.41	3.91	28.24	21.92	155.597	Horizontal	Pass
		1908.5	-2.44	3.94	28.25	21.87	153.815	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.68	3.77	28.31	21.86	153.462	Horizontal	Pass
		1880	-2.39	3.91	28.22	21.92	155.597	Horizontal	Pass
		1907.5	-2.42	3.94	28.20	21.84	152.757	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.68	3.79	28.33	21.86	153.462	Horizontal	Pass
		1880	-2.42	3.95	28.22	21.85	153.109	Horizontal	Pass
		1905	-2.30	3.97	28.19	21.92	155.597	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.67	3.79	28.34	21.88	154.170	Horizontal	Pass
		1880	-2.44	3.95	28.22	21.83	152.405	Horizontal	Pass
		1902.5	-2.35	3.97	28.18	21.86	153.462	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.60	3.81	28.35	21.94	156.315	Horizontal	Pass
		1880	-2.44	3.96	28.22	21.82	152.055	Horizontal	Pass
		1900	-2.33	4.00	28.16	21.83	152.405	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-2.59	3.76	28.24	21.89	154.525	Vertical	Pass
		1880	-2.35	3.91	28.22	21.96	157.036	Vertical	Pass
		1909.3	-2.33	3.93	28.20	21.94	156.315	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.52	3.77	28.23	21.94	156.315	Vertical	Pass
		1880	-2.43	3.91	28.24	21.90	154.882	Vertical	Pass
		1908.5	-2.41	3.94	28.25	21.90	154.882	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.69	3.77	28.31	21.85	153.109	Vertical	Pass
		1880	-2.52	3.91	28.22	21.79	151.008	Vertical	Pass
		1907.5	-2.35	3.94	28.20	21.91	155.239	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.71	3.79	28.33	21.83	152.405	Vertical	Pass
		1880	-2.42	3.95	28.22	21.85	153.109	Vertical	Pass
		1905	-2.33	3.97	28.19	21.89	154.525	Vertical	Pass

15.0MHz		1857.5	-2.69	3.79	28.34	21.86	153.462	Vertical	Pass
Band	1/#Mid	1880	-2.43	3.95	28.22	21.84	152.757	Vertical	Pass
QPSK		1902.5	-2.34	3.97	28.18	21.87	153.815	Vertical	Pass
20.0MHz		1860	-2.54	3.81	28.35	22.00	158.489	Vertical	Pass
Band	1/#Mid	1880	-2.27	3.96	28.22	21.99	158.125	Vertical	Pass
QPSK		1900	-2.16	4.00	28.16	22.00	158.489	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.32	3.76	28.24	21.16	130.617	Horizontal	Pass
		1880	-3.23	3.91	28.22	21.08	128.233	Horizontal	Pass
		1909.3	-3.20	3.93	28.20	21.07	127.938	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.37	3.77	28.23	21.09	128.529	Horizontal	Pass
		1880	-3.18	3.91	28.24	21.15	130.317	Horizontal	Pass
		1908.5	-3.29	3.94	28.25	21.02	126.474	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.37	3.77	28.31	21.17	130.918	Horizontal	Pass
		1880	-3.16	3.91	28.22	21.15	130.317	Horizontal	Pass
		1907.5	-3.26	3.94	28.20	21.00	125.893	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.50	3.79	28.33	21.04	127.057	Horizontal	Pass
		1880	-3.18	3.95	28.22	21.09	128.529	Horizontal	Pass
		1905	-3.20	3.97	28.19	21.02	126.474	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.54	3.79	28.34	21.01	126.183	Horizontal	Pass
		1880	-3.10	3.95	28.22	21.17	130.918	Horizontal	Pass
		1902.5	-3.05	3.97	28.18	21.16	130.617	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.46	3.81	28.35	21.08	128.233	Horizontal	Pass
		1880	-3.25	3.96	28.22	21.01	126.183	Horizontal	Pass
		1900	-3.15	4.00	28.16	21.01	126.183	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.45	3.76	28.24	21.03	126.765	Vertical	Pass
		1880	-3.17	3.91	28.22	21.14	130.017	Vertical	Pass
		1909.3	-3.20	3.93	28.20	21.07	127.938	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.38	3.77	28.23	21.08	128.233	Vertical	Pass
		1880	-3.27	3.91	28.24	21.06	127.644	Vertical	Pass
		1908.5	-3.21	3.94	28.25	21.10	128.825	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.38	3.77	28.31	21.16	130.617	Vertical	Pass
		1880	-3.15	3.91	28.22	21.16	130.617	Vertical	Pass
		1907.5	-3.21	3.94	28.20	21.05	127.350	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.40	3.79	28.33	21.14	130.017	Vertical	Pass
		1880	-3.18	3.95	28.22	21.09	128.529	Vertical	Pass
		1905	-3.08	3.97	28.19	21.14	130.017	Vertical	Pass
15.0MHz Band 16	1/#Mid	1857.5	-3.44	3.79	28.34	21.11	129.122	Vertical	Pass
		1880	-3.14	3.95	28.22	21.13	129.718	Vertical	Pass

QAM		1902.5	-3.14	3.97	28.18	21.07	127.938	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.37	3.81	28.35	21.17	130.918	Vertical	Pass
Band 16		1880	-3.08	3.96	28.22	21.18	131.220	Vertical	Pass
QAM		1900	-2.98	4.00	28.16	21.18	131.220	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.96	3.12	27.58	21.50	141.254	Horizontal	Pass
		1732.5	-2.89	3.27	27.61	21.45	139.637	Horizontal	Pass
		1754.3	-2.88	3.29	27.63	21.46	139.959	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.97	3.13	27.61	21.51	141.579	Horizontal	Pass
		1732.5	-2.83	3.27	27.61	21.51	141.579	Horizontal	Pass
		1753.5	-2.89	3.30	27.62	21.43	138.995	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.97	3.13	27.63	21.53	142.233	Horizontal	Pass
		1732.5	-2.94	3.27	27.61	21.40	138.038	Horizontal	Pass
		1752.5	-2.87	3.30	27.60	21.43	138.995	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.02	3.15	27.64	21.47	140.281	Horizontal	Pass
		1732.5	-2.86	3.31	27.61	21.44	139.316	Horizontal	Pass
		1750	-2.81	3.33	27.59	21.45	139.637	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.96	3.15	27.65	21.54	142.561	Horizontal	Pass
		1732.5	-2.85	3.31	27.61	21.45	139.637	Horizontal	Pass
		1747.5	-2.71	3.33	27.57	21.53	142.233	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.98	3.17	27.66	21.51	141.579	Horizontal	Pass
		1732.5	-2.81	3.32	27.61	21.48	140.605	Horizontal	Pass
		1745	-2.77	3.36	27.56	21.43	138.995	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.99	3.12	27.58	21.47	140.281	Vertical	Pass
		1732.5	-2.81	3.27	27.61	21.53	142.233	Vertical	Pass
		1754.3	-2.89	3.29	27.63	21.45	139.637	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.93	3.13	27.61	21.55	142.889	Vertical	Pass
		1732.5	-2.79	3.27	27.61	21.55	142.889	Vertical	Pass
		1753.5	-2.77	3.30	27.62	21.55	142.889	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.99	3.13	27.63	21.51	141.579	Vertical	Pass
		1732.5	-2.89	3.27	27.61	21.45	139.637	Vertical	Pass
		1752.5	-2.74	3.30	27.60	21.56	143.219	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.03	3.15	27.64	21.46	139.959	Vertical	Pass
		1732.5	-2.83	3.31	27.61	21.47	140.281	Vertical	Pass
		1750	-2.70	3.33	27.59	21.56	143.219	Vertical	Pass

15.0MHz		1717.5	-2.94	3.15	27.65	21.56	143.219	Vertical	Pass
Band	1/#Mid	1732.5	-2.72	3.31	27.61	21.58	143.880	Vertical	Pass
QPSK		1747.5	-2.69	3.33	27.57	21.55	142.889	Vertical	Pass
20.0MHz		1720	-2.90	3.17	27.66	21.59	144.212	Vertical	Pass
Band	1/#Mid	1732.5	-2.69	3.32	27.61	21.60	144.544	Vertical	Pass
QPSK		1745	-2.60	3.36	27.56	21.60	144.544	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.31	3.12	27.58	20.15	103.514	Horizontal	Pass
		1732.5	-4.16	3.27	27.61	20.18	104.232	Horizontal	Pass
		1754.3	-4.07	3.29	27.63	20.27	106.414	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.30	3.13	27.61	20.18	104.232	Horizontal	Pass
		1732.5	-4.08	3.27	27.61	20.26	106.170	Horizontal	Pass
		1753.5	-4.05	3.30	27.62	20.27	106.414	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.23	3.13	27.63	20.27	106.414	Horizontal	Pass
		1732.5	-4.18	3.27	27.61	20.16	103.753	Horizontal	Pass
		1752.5	-4.18	3.30	27.60	20.12	102.802	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.24	3.15	27.64	20.25	105.925	Horizontal	Pass
		1732.5	-4.15	3.31	27.61	20.15	103.514	Horizontal	Pass
		1750	-4.07	3.33	27.59	20.19	104.472	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.31	3.15	27.65	20.19	104.472	Horizontal	Pass
		1732.5	-4.11	3.31	27.61	20.19	104.472	Horizontal	Pass
		1747.5	-3.96	3.33	27.57	20.28	106.660	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.38	3.17	27.66	20.11	102.565	Horizontal	Pass
		1732.5	-4.17	3.32	27.61	20.12	102.802	Horizontal	Pass
		1745	-4.00	3.36	27.56	20.20	104.713	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.29	3.12	27.58	20.17	103.992	Vertical	Pass
		1732.5	-4.07	3.27	27.61	20.27	106.414	Vertical	Pass
		1754.3	-4.11	3.29	27.63	20.23	105.439	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.24	3.13	27.61	20.24	105.682	Vertical	Pass
		1732.5	-4.08	3.27	27.61	20.26	106.170	Vertical	Pass
		1753.5	-4.19	3.30	27.62	20.13	103.039	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.37	3.13	27.63	20.13	103.039	Vertical	Pass
		1732.5	-4.07	3.27	27.61	20.27	106.414	Vertical	Pass
		1752.5	-4.11	3.30	27.60	20.19	104.472	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.31	3.15	27.64	20.18	104.232	Vertical	Pass
		1732.5	-4.11	3.31	27.61	20.19	104.472	Vertical	Pass
		1750	-4.07	3.33	27.59	20.19	104.472	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-4.30	3.15	27.65	20.20	104.713	Vertical	Pass
		1732.5	-4.08	3.31	27.61	20.22	105.196	Vertical	Pass

QAM		1747.5	-4.06	3.33	27.57	20.18	104.232	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.20	3.17	27.66	20.29	106.905	Vertical	Pass
Band 16		1732.5	-3.99	3.32	27.61	20.30	107.152	Vertical	Pass
QAM		1745	-3.88	3.36	27.56	20.32	107.647	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	824.7	3.57	2.01	19.68	2.15	19.09	81.096	Horizontal	Pass
		836.5	3.37	2.01	19.77	2.15	18.98	79.068	Horizontal	Pass
		848.3	3.32	2.02	19.82	2.15	18.97	78.886	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.53	2.01	19.70	2.15	19.07	80.724	Horizontal	Pass
		836.5	3.46	2.01	19.77	2.15	19.07	80.724	Horizontal	Pass
		847.5	3.45	2.02	19.81	2.15	19.09	81.096	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	3.56	2.01	19.71	2.15	19.11	81.470	Horizontal	Pass
		836.5	3.44	2.01	19.77	2.15	19.05	80.353	Horizontal	Pass
		846.5	3.41	2.02	19.79	2.15	19.03	79.983	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	3.49	2.01	19.73	2.15	19.06	80.538	Horizontal	Pass
		836.5	3.40	2.01	19.77	2.15	19.01	79.616	Horizontal	Pass
		844	3.43	2.02	19.78	2.15	19.04	80.168	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	3.52	2.01	19.68	2.15	19.04	80.168	Vertical	Pass
		836.5	3.44	2.01	19.77	2.15	19.05	80.353	Vertical	Pass
		848.3	3.43	2.02	19.82	2.15	19.08	80.910	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.50	2.01	19.70	2.15	19.04	80.168	Vertical	Pass
		836.5	3.44	2.01	19.77	2.15	19.05	80.353	Vertical	Pass
		847.5	3.44	2.02	19.81	2.15	19.08	80.910	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	3.50	2.01	19.71	2.15	19.05	80.353	Vertical	Pass
		836.5	3.35	2.01	19.77	2.15	18.96	78.705	Vertical	Pass
		846.5	3.40	2.02	19.79	2.15	19.02	79.799	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	3.56	2.01	19.73	2.15	19.13	81.846	Vertical	Pass
		836.5	3.54	2.01	19.77	2.15	19.15	82.224	Vertical	Pass
		844	3.52	2.02	19.78	2.15	19.13	81.846	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. ERP	Max. ERP	Polarization	
			(dBm)	(dBm)	(dB)		Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	824.7	2.51	2.01	19.68	2.15	18.03	63.533	Horizontal	Pass
		836.5	2.38	2.01	19.77	2.15	17.99	62.951	Horizontal	Pass
		848.3	2.35	2.02	19.82	2.15	18.00	63.096	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	2.43	2.01	19.70	2.15	17.97	62.661	Horizontal	Pass
		836.5	2.36	2.01	19.77	2.15	17.97	62.661	Horizontal	Pass
		847.5	2.41	2.02	19.81	2.15	18.05	63.826	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	2.45	2.01	19.71	2.15	18.00	63.096	Horizontal	Pass
		836.5	2.45	2.01	19.77	2.15	18.06	63.973	Horizontal	Pass
		846.5	2.39	2.02	19.79	2.15	18.01	63.241	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	2.54	2.01	19.73	2.15	18.11	64.714	Horizontal	Pass
		836.5	2.35	2.01	19.77	2.15	17.96	62.517	Horizontal	Pass
		844	2.31	2.02	19.78	2.15	17.92	61.944	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	2.59	2.01	19.68	2.15	18.11	64.714	Vertical	Pass
		836.5	2.39	2.01	19.77	2.15	18.00	63.096	Vertical	Pass
		848.3	2.45	2.02	19.82	2.15	18.10	64.565	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	2.54	2.01	19.70	2.15	18.08	64.269	Vertical	Pass
		836.5	2.49	2.01	19.77	2.15	18.10	64.565	Vertical	Pass
		847.5	2.38	2.02	19.81	2.15	18.02	63.387	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	2.51	2.01	19.71	2.15	18.06	63.973	Vertical	Pass
		836.5	2.33	2.01	19.77	2.15	17.94	62.230	Vertical	Pass
		846.5	2.41	2.02	19.79	2.15	18.03	63.533	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	2.58	2.01	19.73	2.15	18.15	65.313	Vertical	Pass
		836.5	2.51	2.01	19.77	2.15	18.12	64.863	Vertical	Pass
		844	2.52	2.02	19.78	2.15	18.13	65.013	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	1.72	4.54	27.75	24.93	311.172	Horizontal	Pass
		2535	1.89	4.69	27.72	24.92	310.456	Horizontal	Pass
		2567.5	2.01	4.71	27.71	25.01	316.957	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	1.72	4.55	27.76	24.93	311.172	Horizontal	Pass
		2535	1.89	4.69	27.72	24.92	310.456	Horizontal	Pass
		2565	2.02	4.72	27.70	25.00	316.228	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	1.72	4.55	27.77	24.94	311.889	Horizontal	Pass
		2535	1.88	4.69	27.72	24.91	309.742	Horizontal	Pass
		2562.5	1.91	4.72	27.69	24.88	307.610	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	1.70	4.57	27.78	24.91	309.742	Horizontal	Pass
		2535	1.94	4.73	27.72	24.93	311.172	Horizontal	Pass
		2560	1.99	4.75	27.68	24.92	310.456	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	1.73	4.54	27.75	24.94	311.889	Vertical	Pass
		2535	1.97	4.69	27.72	25.00	316.228	Vertical	Pass
		2567.5	1.94	4.71	27.71	24.94	311.889	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	1.80	4.55	27.76	25.01	316.957	Vertical	Pass
		2535	1.92	4.69	27.72	24.95	312.608	Vertical	Pass
		2565	1.93	4.72	27.70	24.91	309.742	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	1.64	4.55	27.77	24.86	306.196	Vertical	Pass
		2535	2.00	4.69	27.72	25.03	318.420	Vertical	Pass
		2562.5	1.96	4.72	27.69	24.93	311.172	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	1.86	4.57	27.78	25.07	321.366	Vertical	Pass
		2535	2.04	4.73	27.72	25.03	318.420	Vertical	Pass
		2560	2.14	4.75	27.68	25.07	321.366	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	1.08	4.54	27.75	24.29	268.534	Horizontal	Pass
		2535	1.26	4.69	27.72	24.29	268.534	Horizontal	Pass
		2567.5	1.32	4.71	27.71	24.32	270.396	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	1.01	4.55	27.76	24.22	264.241	Horizontal	Pass
		2535	1.21	4.69	27.72	24.24	265.461	Horizontal	Pass
		2565	1.26	4.72	27.70	24.24	265.461	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	1.06	4.55	27.77	24.28	267.917	Horizontal	Pass
		2535	1.12	4.69	27.72	24.15	260.016	Horizontal	Pass
		2562.5	1.19	4.72	27.69	24.16	260.615	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	1.10	4.57	27.78	24.31	269.774	Horizontal	Pass
		2535	1.32	4.73	27.72	24.31	269.774	Horizontal	Pass
		2560	1.26	4.75	27.68	24.19	262.422	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	1.05	4.54	27.75	24.26	266.686	Vertical	Pass
		2535	1.18	4.69	27.72	24.21	263.633	Vertical	Pass
		2567.5	1.20	4.71	27.71	24.20	263.027	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	1.07	4.55	27.76	24.28	267.917	Vertical	Pass
		2535	1.20	4.69	27.72	24.23	264.850	Vertical	Pass
		2565	1.19	4.72	27.70	24.17	261.216	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	0.98	4.55	27.77	24.20	263.027	Vertical	Pass
		2535	1.27	4.69	27.72	24.30	269.153	Vertical	Pass
		2562.5	1.33	4.72	27.69	24.30	269.153	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	1.14	4.57	27.78	24.35	272.270	Vertical	Pass
		2535	1.35	4.73	27.72	24.34	271.644	Vertical	Pass
		2560	1.43	4.75	27.68	24.36	272.898	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Midd	699.7	3.68	1.91	19.21	2.15	18.83	76.384	Vertical	Pass
		707.5	3.65	1.91	19.26	2.15	18.85	76.736	Vertical	Pass
		715.3	3.58	1.93	19.34	2.15	18.84	76.560	Vertical	Pass
3.0MHz Band QPSK	1/#Midd	700.5	3.70	1.91	19.21	2.15	18.85	76.736	Vertical	Pass
		707.5	3.64	1.91	19.26	2.15	18.84	76.560	Vertical	Pass
		714.5	3.51	1.93	19.34	2.15	18.77	75.336	Vertical	Pass
5.0MHz Band QPSK	1/#Midd	701.5	3.65	1.91	19.23	2.15	18.82	76.208	Vertical	Pass
		707.5	3.67	1.91	19.26	2.15	18.87	77.090	Vertical	Pass
		713.5	3.53	1.92	19.33	2.15	18.79	75.683	Vertical	Pass
10.0MHz Band QPSK	1/#Midd	704	3.53	1.91	19.25	2.15	18.72	74.473	Vertical	Pass
		707.5	3.72	1.91	19.26	2.15	18.92	77.983	Vertical	Pass
		711	3.63	1.92	19.32	2.15	18.88	77.268	Vertical	Pass
1.4MHz Band QPSK	1/#Midd	699.7	3.70	1.91	19.21	2.15	18.85	76.736	Horizontal	Pass
		707.5	3.63	1.91	19.26	2.15	18.83	76.384	Horizontal	Pass
		715.3	3.55	1.93	19.34	2.15	18.81	76.033	Horizontal	Pass
3.0MHz Band QPSK	1/#Midd	700.5	3.76	1.91	19.21	2.15	18.91	77.804	Horizontal	Pass
		707.5	3.63	1.91	19.26	2.15	18.83	76.384	Horizontal	Pass
		714.5	3.52	1.93	19.34	2.15	18.78	75.509	Horizontal	Pass
5.0MHz Band QPSK	1/#Midd	701.5	3.62	1.91	19.23	2.15	18.79	75.683	Horizontal	Pass
		707.5	3.55	1.91	19.26	2.15	18.75	74.989	Horizontal	Pass
		713.5	3.57	1.92	19.33	2.15	18.83	76.384	Horizontal	Pass
10.0MHz Band QPSK	1/#Midd	704	3.76	1.91	19.25	2.15	18.95	78.524	Horizontal	Pass
		707.5	3.76	1.91	19.26	2.15	18.96	78.705	Horizontal	Pass
		711	3.68	1.92	19.32	2.15	18.93	78.163	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)		Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)			Correction	Average	Average		
						(dB)	(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	2.83	1.91	19.21	2.15	17.98	62.806	Vertical	Pass
		707.5	2.84	1.91	19.26	2.15	18.04	63.680	Vertical	Pass
		715.3	2.82	1.93	19.34	2.15	18.08	64.269	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	2.91	1.91	19.21	2.15	18.06	63.973	Vertical	Pass
		707.5	2.82	1.91	19.26	2.15	18.02	63.387	Vertical	Pass
		714.5	2.84	1.93	19.34	2.15	18.10	64.565	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	2.91	1.91	19.23	2.15	18.08	64.269	Vertical	Pass
		707.5	2.77	1.91	19.26	2.15	17.97	62.661	Vertical	Pass
		713.5	2.78	1.92	19.33	2.15	18.04	63.680	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	2.74	1.91	19.25	2.15	17.93	62.087	Vertical	Pass
		707.5	2.74	1.91	19.26	2.15	17.94	62.230	Vertical	Pass
		711	2.75	1.92	19.32	2.15	18.00	63.096	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	2.89	1.91	19.21	2.15	18.04	63.680	Horizontal	Pass
		707.5	2.90	1.91	19.26	2.15	18.10	64.565	Horizontal	Pass
		715.3	2.82	1.93	19.34	2.15	18.08	64.269	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	2.93	1.91	19.21	2.15	18.08	64.269	Horizontal	Pass
		707.5	2.90	1.91	19.26	2.15	18.10	64.565	Horizontal	Pass
		714.5	2.81	1.93	19.34	2.15	18.07	64.121	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	2.86	1.91	19.23	2.15	18.03	63.533	Horizontal	Pass
		707.5	2.77	1.91	19.26	2.15	17.97	62.661	Horizontal	Pass
		713.5	2.81	1.92	19.33	2.15	18.07	64.121	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	2.97	1.91	19.25	2.15	18.16	65.464	Horizontal	Pass
		707.5	2.95	1.91	19.26	2.15	18.15	65.313	Horizontal	Pass
		711	2.87	1.92	19.32	2.15	18.12	64.863	Horizontal	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)		Average	Average		
					(dB)		(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	706.5	3.14	1.91	19.23	2.15	18.31	67.764	Vertical	Pass
		710	3.13	1.91	19.26	2.15	18.33	68.077	Vertical	Pass
		713.5	3.08	1.92	19.33	2.15	18.34	68.234	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	3.14	1.91	19.25	2.15	18.33	68.077	Vertical	Pass
		710	3.16	1.91	19.26	2.15	18.36	68.549	Vertical	Pass
		711	3.04	1.92	19.32	2.15	18.29	67.453	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	3.21	1.91	19.23	2.15	18.38	68.865	Horizontal	Pass
		710	3.10	1.91	19.26	2.15	18.30	67.608	Horizontal	Pass
		713.5	3.06	1.92	19.33	2.15	18.32	67.920	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	3.26	1.91	19.25	2.15	18.45	69.984	Horizontal	Pass
		710	3.23	1.91	19.26	2.15	18.43	69.663	Horizontal	Pass
		711	3.20	1.92	19.32	2.15	18.45	69.984	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)		Average	Average		
							(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	706.5	2.40	1.91	19.23	2.15	17.57	57.148	Vertical	Pass
		710	2.36	1.91	19.26	2.15	17.56	57.016	Vertical	Pass
		713.5	2.30	1.92	19.33	2.15	17.56	57.016	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	2.36	1.91	19.25	2.15	17.55	56.885	Vertical	Pass
		710	2.40	1.91	19.26	2.15	17.60	57.544	Vertical	Pass
		711	2.36	1.92	19.32	2.15	17.61	57.677	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	2.43	1.91	19.23	2.15	17.60	57.544	Horizontal	Pass
		710	2.41	1.91	19.26	2.15	17.61	57.677	Horizontal	Pass
		713.5	2.24	1.92	19.33	2.15	17.50	56.234	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	2.43	1.91	19.25	2.15	17.62	57.810	Horizontal	Pass
		710	2.44	1.91	19.26	2.15	17.64	58.076	Horizontal	Pass
		711	2.38	1.92	19.32	2.15	17.63	57.943	Horizontal	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.8 LTE BAND 19

Radiated Power (ERP) for Band 19										
Mode	RB/R B SIZE	Frequenc y	Result							Conclusio n
			SG Level	Cable Loss (dBm)	Antenn a Gain (dB)	Correctio n (dB)	Max. EPR	Max. EPR	Polarizatio n Of Max. ERP	
			(dBm)				Averag e	Averag e		
							(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	832.5	2.18	1.91	19.21	2.15	17.33	54.075	Vertical	Pass
		837.5	2.15	1.91	19.26	2.15	17.35	54.325	Vertical	Pass
		842.5	2.19	1.93	19.34	2.15	17.45	55.590	Vertical	Pass
10.0MH z Band QPSK	1/#Mid	835	2.17	1.91	19.21	2.15	17.32	53.951	Vertical	Pass
		837.5	2.17	1.91	19.26	2.15	17.37	54.576	Vertical	Pass
		840	2.17	1.93	19.34	2.15	17.43	55.335	Vertical	Pass
15.0MH z Band QPSK	1/#Mid	837.5	2.34	1.91	19.23	2.15	17.51	56.364	Vertical	Pass

Radiated Power (ERP) for Band 19										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EPR	Max. EPR	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average (dBm)	Average (mW)		
5.0MHz Band 16 QAM	1/#Mid	832.5	1.45	1.91	19.21	2.15	16.60	45.709	Vertical	Pass
		837.5	1.37	1.91	19.26	2.15	16.57	45.394	Vertical	Pass
		842.5	1.33	1.93	19.34	2.15	16.59	45.604	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	835	1.39	1.91	19.21	2.15	16.54	45.082	Vertical	Pass
		837.5	1.42	1.91	19.26	2.15	16.62	45.920	Vertical	Pass
		840	1.27	1.93	19.34	2.15	16.53	44.978	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	837.5	1.54	1.91	19.23	2.15	16.71	46.881	Vertical	Pass

8.9 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2557.5	2.64	4.54	27.75	25.85	384.592	Horizontal	Pass
		2593	2.84	4.69	27.72	25.87	386.367	Horizontal	Pass
		2652.5	2.81	4.71	27.71	25.81	381.066	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2560	2.57	4.55	27.76	25.78	378.443	Horizontal	Pass
		2593	2.83	4.69	27.72	25.86	385.478	Horizontal	Pass
		2650	2.80	4.72	27.70	25.78	378.443	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2562.5	2.64	4.55	27.77	25.86	385.478	Horizontal	Pass
		2593	2.78	4.69	27.72	25.81	381.066	Horizontal	Pass
		2647.5	2.85	4.72	27.69	25.82	381.944	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2565	2.63	4.57	27.78	25.84	383.707	Horizontal	Pass
		2593	2.76	4.73	27.72	25.75	375.837	Horizontal	Pass
		2645	2.94	4.75	27.68	25.87	386.367	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2557.5	2.57	4.54	27.75	25.78	378.443	Vertical	Pass
		2593	2.81	4.69	27.72	25.84	383.707	Vertical	Pass
		2652.5	2.85	4.71	27.71	25.85	384.592	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2560	2.66	4.55	27.76	25.87	386.367	Vertical	Pass
		2593	2.78	4.69	27.72	25.81	381.066	Vertical	Pass
		2650	2.88	4.72	27.70	25.86	385.478	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2562.5	2.51	4.55	27.77	25.73	374.111	Vertical	Pass
		2593	2.76	4.69	27.72	25.79	379.315	Vertical	Pass
		2647.5	2.73	4.72	27.69	25.70	371.535	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2565	2.71	4.57	27.78	25.92	390.841	Vertical	Pass
		2593	2.93	4.73	27.72	25.92	390.841	Vertical	Pass
		2645	3.00	4.75	27.68	25.93	391.742	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2557.5	2498.5	4.54	27.75	24.74	297.852	Horizontal	Pass
		2593	2593	4.69	27.72	24.79	301.301	Horizontal	Pass
		2652.5	2687.5	4.71	27.71	24.85	305.492	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2560	2501	4.55	27.76	24.85	305.492	Horizontal	Pass
		2593	2593	4.69	27.72	24.76	299.226	Horizontal	Pass
		2650	2685	4.72	27.70	24.87	306.902	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2562.5	2503.5	4.55	27.77	24.81	302.691	Horizontal	Pass
		2593	2593	4.69	27.72	24.72	296.483	Horizontal	Pass
		2647.5	2682.5	4.72	27.69	24.85	305.492	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2565	2506	4.57	27.78	24.84	304.789	Horizontal	Pass
		2593	2593	4.73	27.72	24.76	299.226	Horizontal	Pass
		2645	2680	4.75	27.68	24.76	299.226	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2557.5	2498.5	4.54	27.75	24.84	304.789	Vertical	Pass
		2593	2593	4.69	27.72	24.88	307.610	Vertical	Pass
		2652.5	2687.5	4.71	27.71	24.75	298.538	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2560	2501	4.55	27.76	24.79	301.301	Vertical	Pass
		2593	2593	4.69	27.72	24.81	302.691	Vertical	Pass
		2650	2685	4.72	27.70	24.78	300.608	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2562.5	2503.5	4.55	27.77	24.85	305.492	Vertical	Pass
		2593	2593	4.69	27.72	24.85	305.492	Vertical	Pass
		2647.5	2682.5	4.72	27.69	24.87	306.902	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2565	2506	4.57	27.78	24.92	310.456	Vertical	Pass
		2593	2593	4.73	27.72	24.93	311.172	Vertical	Pass
		2645	2680	4.75	27.68	24.88	307.610	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53

LIMIT

§22.917 (e) and §24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

§27.53 (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB at the channel edges and $55 + 10 \log_{10}(p)$ at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

☐ LTE Band 2/4/5/7/12/17/19/41

RESULTS

PASS

9.1 LTE BAND 2

QPSK EIRP POWER FOR LTE BAND 2 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-47.95	4.04	33.51	-18.48	-13	-5.48	Horizontal
3701.4	-53.52	4.04	33.51	-24.05	-13	-11.05	Vertical
5552.1	-46.81	5.24	35.84	-16.21	-13	-3.21	Vertical
5552.1	-53.44	5.24	35.84	-22.84	-13	-9.84	Horizontal
187.3	-42.01	1.43	16.02	-27.42	-13	-14.42	Vertical
376.4	-37.60	1.30	17.99	-20.91	-13	-7.91	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-53.11	4.04	33.56	-23.59	-13	-10.59	Horizontal
3760.0	-50.57	4.04	33.56	-21.05	-13	-8.05	Vertical
5640.0	-49.75	5.24	35.91	-19.08	-13	-6.08	Vertical
5640.0	-50.07	5.24	35.91	-19.40	-13	-6.40	Horizontal
183.5	-39.91	1.62	16.97	-24.56	-13	-11.56	Vertical
260.0	-37.50	1.74	15.98	-23.27	-13	-10.27	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-51.58	4.04	34.00	-21.62	-13	-8.62	Horizontal
3818.6	-48.55	4.04	34.00	-18.59	-13	-5.59	Vertical
5727.9	-53.44	5.24	36.04	-22.64	-13	-9.64	Vertical
5727.9	-53.70	5.24	36.04	-22.90	-13	-9.90	Horizontal
209.5	-43.78	1.42	17.29	-27.91	-13	-14.91	Vertical
432.8	-39.57	1.50	17.90	-23.16	-13	-10.16	Horizontal

QPSK EIRP POWER FOR LTE BAND 2 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-52.87	4.07	33.54	-23.40	-13	-10.40	Horizontal
3720.0	-49.69	4.07	33.54	-20.22	-13	-7.22	Vertical
5580.0	-50.60	5.28	35.86	-20.02	-13	-7.02	Vertical
5580.0	-51.25	5.28	35.86	-20.67	-13	-7.67	Horizontal
189.4	-40.37	1.58	16.89	-25.05	-13	-12.05	Vertical
367.6	-37.32	1.76	17.26	-21.82	-13	-8.82	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.43	4.04	33.56	-19.91	-13	-6.91	Horizontal
3760.0	-49.00	4.04	33.56	-19.48	-13	-6.48	Vertical
5640.0	-53.02	5.24	35.91	-22.35	-13	-9.35	Vertical
5640.0	-53.89	5.24	35.91	-23.22	-13	-10.22	Horizontal
187.7	-43.82	1.46	16.27	-29.01	-13	-16.01	Vertical
300.5	-39.88	1.59	15.15	-26.32	-13	-13.32	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-45.95	4.04	34.00	-15.99	-13	-2.99	Horizontal
3800.0	-50.05	4.04	34.00	-20.09	-13	-7.09	Vertical
5700.0	-47.94	5.24	36.04	-17.14	-13	-4.14	Vertical
5700.0	-52.01	5.24	36.04	-21.21	-13	-8.21	Horizontal
207.8	-34.12	1.36	17.39	-18.08	-13	-5.08	Vertical
418.9	-34.15	1.66	15.39	-20.42	-13	-7.42	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.2 LTE BAND 4

QPSK EIRP POWER FOR LTE BAND 4 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-44.80	4.02	29.80	-19.02	-13	-6.02	Horizontal
3421.4	-48.86	4.02	29.80	-23.08	-13	-10.08	Vertical
5132.1	-44.28	5.24	35.84	-13.68	-13	-0.68	Vertical
5132.1	-49.54	5.24	35.84	-18.94	-13	-5.94	Horizontal
199.8	-42.73	1.68	16.04	-28.37	-13	-15.37	Vertical
349.3	-37.01	1.78	17.74	-21.05	-13	-8.05	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.82	4.03	30.00	-20.85	-13	-7.85	Horizontal
3465.0	-45.53	4.03	30.00	-19.56	-13	-6.56	Vertical
5197.5	-44.15	5.25	35.86	-13.54	-13	-0.54	Vertical
5197.5	-49.95	5.25	35.86	-19.34	-13	-6.34	Horizontal
211.2	-35.47	1.72	17.69	-19.50	-13	-6.50	Vertical
356.9	-42.17	1.62	16.02	-27.76	-13	-14.76	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-49.88	4.05	30.01	-23.92	-13	-10.92	Horizontal
3508.6	-48.83	4.05	30.01	-22.87	-13	-9.87	Vertical
5262.9	-49.40	5.26	35.86	-18.80	-13	-5.80	Vertical
5262.9	-50.81	5.26	35.86	-20.21	-13	-7.21	Horizontal
203.8	-42.48	1.80	16.69	-27.59	-13	-14.59	Vertical
235.6	-36.52	1.75	16.66	-21.62	-13	-8.62	Horizontal

QPSK EIRP POWER FOR LTE BAND 4 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-46.42	4.02	29.80	-20.64	-13	-7.64	Horizontal
3440.0	-45.67	4.02	29.80	-19.89	-13	-6.89	Vertical
5160.0	-49.03	5.24	35.84	-18.43	-13	-5.43	Vertical
5160.0	-51.78	5.24	35.84	-21.18	-13	-8.18	Horizontal
193.2	-41.37	1.57	17.26	-25.68	-13	-12.68	Vertical
249.6	-41.34	1.78	16.35	-26.77	-13	-13.77	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.79	4.03	30.00	-20.82	-13	-7.82	Horizontal
3465.0	-49.87	4.03	30.00	-23.90	-13	-10.90	Vertical
5197.5	-48.99	5.25	35.86	-18.38	-13	-5.38	Vertical
5197.5	-52.27	5.25	35.86	-21.66	-13	-8.66	Horizontal
182.2	-39.33	1.44	17.95	-22.82	-13	-9.82	Vertical
362.5	-40.91	1.65	16.09	-26.47	-13	-13.47	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-49.41	4.05	27.68	-25.78	-13	-12.78	Horizontal
3490.0	-47.60	4.05	27.68	-23.97	-13	-10.97	Vertical
5235.0	-44.76	5.26	35.86	-14.16	-13	-1.16	Vertical
5235.0	-53.08	5.26	35.86	-22.48	-13	-9.48	Horizontal
190.9	-41.82	1.61	16.85	-26.58	-13	-13.58	Vertical
389.1	-40.12	1.61	15.19	-26.54	-13	-13.54	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

Over Limit= : P_{Mea}(dBm)-Limit(dBm)

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.3 LTE BAND 5

QPSK EIRP POWER FOR LTE BAND 5 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-44.51	2.78	27.50	-19.79	-13	-6.79	Horizontal
1649.4	-49.63	2.78	27.50	-24.91	-13	-11.91	Vertical
2474.1	-48.12	2.90	27.80	-23.22	-13	-10.22	Vertical
2474.1	-49.84	2.90	27.80	-24.94	-13	-11.94	Horizontal
186.1	-34.38	1.76	17.59	-18.55	-13	-5.55	Vertical
282.8	-40.51	1.63	15.87	-26.27	-13	-13.27	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-51.20	2.80	27.48	-26.52	-13	-13.52	Horizontal
1673.0	-45.22	2.80	27.48	-20.54	-13	-7.54	Vertical
2509.5	-47.04	2.91	27.70	-22.25	-13	-9.25	Vertical
2509.5	-52.45	2.91	27.70	-27.66	-13	-14.66	Horizontal
184.1	-44.92	1.61	15.68	-30.85	-13	-17.85	Vertical
308.6	-43.63	1.59	17.52	-27.71	-13	-14.71	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-52.26	2.82	27.43	-27.65	-13	-14.65	Horizontal
1696.6	-50.72	2.82	27.43	-26.11	-13	-13.11	Vertical
2544.9	-44.60	2.92	27.74	-19.78	-13	-6.78	Vertical
2544.9	-49.57	2.92	27.74	-24.75	-13	-11.75	Horizontal
189.3	-42.15	1.69	16.67	-27.16	-13	-14.16	Vertical
374.9	-43.16	1.70	17.18	-27.68	-13	-14.68	Horizontal

QPSK EIRP POWER FOR LTE BAND 5 (10MHZ BANDWIDTH)

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-45.67	2.78	27.50	-20.95	-13	-7.95	Horizontal
1658.0	-52.42	2.78	27.50	-27.70	-13	-14.70	Vertical
2487.0	-45.08	2.90	27.80	-20.18	-13	-7.18	Vertical
2487.0	-51.55	2.90	27.80	-26.65	-13	-13.65	Horizontal
194.6	-34.90	1.71	15.57	-21.04	-13	-8.04	Vertical
360.0	-42.31	1.34	16.40	-27.25	-13	-14.25	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-48.41	2.80	27.48	-23.73	-13	-10.73	Horizontal
1673.0	-50.16	2.80	27.48	-25.48	-13	-12.48	Vertical
2509.5	-52.12	2.91	27.70	-27.33	-13	-14.33	Vertical
2509.5	-50.47	2.91	27.70	-25.68	-13	-12.68	Horizontal
195.0	-34.94	1.44	17.04	-19.34	-13	-6.34	Vertical
324.1	-35.58	1.76	17.62	-19.72	-13	-6.72	Horizontal
Test Results for High Channel 844MHz							
1688.0	-46.77	2.82	27.43	-22.16	-13	-9.16	Horizontal
1688.0	-51.45	2.82	27.43	-26.84	-13	-13.84	Vertical
2532.0	-52.79	2.92	27.74	-27.97	-13	-14.97	Vertical
2532.0	-51.84	2.92	27.74	-27.02	-13	-14.02	Horizontal
201.2	-39.84	1.74	17.70	-23.88	-13	-10.88	Vertical
438.7	-37.12	1.41	17.46	-21.06	-13	-8.06	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.4 LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (5MHZ BANDWIDTH)

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-61.47	5.23	35.81	-30.89	-25	-5.89	Horizontal
5005.0	-60.49	5.23	35.81	-29.91	-25	-4.91	Vertical
7507.5	-59.02	5.67	36.85	-27.84	-25	-2.84	Vertical
7507.5	-62.84	5.67	36.85	-31.66	-25	-6.66	Horizontal
210.0	-48.10	1.73	17.97	-31.86	-25	-6.86	Vertical
302.1	-45.32	1.38	15.11	-31.59	-25	-6.59	Horizontal
Test Results For Mid Channel 707.5MHz							
5070.0	-63.51	5.23	35.82	-32.92	-25	-7.92	Horizontal
5070.0	-62.30	5.23	35.82	-31.71	-25	-6.71	Vertical
7605.0	-64.83	5.67	36.85	-33.65	-25	-8.65	Vertical
7605.0	-61.81	5.67	36.85	-30.63	-25	-5.63	Horizontal
201.2	-53.92	1.77	16.17	-39.51	-25	-14.51	Vertical
429.4	-44.83	1.63	15.21	-31.25	-25	-6.25	Horizontal
Test Results for High Channel 715.3MHz							
5135.0	-62.25	5.24	35.83	-31.66	-25	-6.66	Horizontal
5135.0	-60.28	5.24	35.83	-29.69	-25	-4.69	Vertical
7702.5	-61.16	5.68	36.87	-29.97	-25	-4.97	Vertical
7702.5	-63.98	5.68	36.87	-32.79	-25	-7.79	Horizontal
203.8	-44.17	1.58	17.56	-28.19	-25	-3.19	Vertical
242.5	-47.80	1.45	16.58	-32.67	-25	-7.67	Horizontal

QPSK EIRP POWER FOR LTE BAND 7 (20MHZ BANDWIDTH)

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-59.81	5.23	35.82	-29.22	-25	-4.22	Horizontal
5020.0	-64.08	5.23	35.82	-33.49	-25	-8.49	Vertical
7530.0	-63.85	5.67	36.86	-32.66	-25	-7.66	Vertical
7530.0	-64.44	5.67	36.86	-33.25	-25	-8.25	Horizontal
200.7	-45.27	1.63	15.76	-31.14	-25	-6.14	Vertical
468.5	-49.81	1.71	15.44	-36.08	-25	-11.08	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.76	5.23	35.82	-31.17	-25	-6.17	Horizontal
5070.0	-62.72	5.23	35.82	-32.13	-25	-7.13	Vertical
7605.0	-63.81	5.67	36.85	-32.63	-25	-7.63	Vertical
7605.0	-64.03	5.67	36.85	-32.85	-25	-7.85	Horizontal
192.2	-44.62	1.79	16.84	-29.56	-25	-4.56	Vertical
283.8	-52.34	1.71	17.64	-36.41	-25	-11.41	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.59	5.24	35.83	-30.00	-25	-5.00	Horizontal
5120.0	-60.47	5.24	35.83	-29.88	-25	-4.88	Vertical
7680.0	-63.67	5.70	36.88	-32.49	-25	-7.49	Vertical
7680.0	-62.43	5.70	36.88	-31.25	-25	-6.25	Horizontal
190.7	-49.37	1.79	16.84	-34.31	-25	-9.31	Vertical
250.3	-48.38	1.71	17.64	-32.45	-25	-7.45	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.5 LTE BAND 12

QPSK EIRP POWER FOR LTE BAND 12 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-51.86	2.60	27.20	-27.26	-13	-14.26	Horizontal
1399.4	-44.36	2.60	27.20	-19.76	-13	-6.76	Vertical
2099.1	-47.48	2.85	27.54	-22.79	-13	-9.79	Vertical
2099.1	-51.63	2.85	27.54	-26.94	-13	-13.94	Horizontal
191.7	-40.31	1.49	17.78	-24.02	-13	-11.02	Vertical
452.9	-41.29	1.36	17.33	-25.32	-13	-12.32	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-47.82	2.61	27.28	-23.15	-13	-10.15	Horizontal
1415.0	-45.75	2.61	27.28	-21.08	-13	-8.08	Vertical
2122.5	-51.22	2.87	27.59	-26.50	-13	-13.50	Vertical
2122.5	-50.62	2.87	27.59	-25.90	-13	-12.90	Horizontal
195.9	-37.92	1.73	15.74	-23.91	-13	-10.91	Vertical
405.8	-42.71	1.62	15.79	-28.54	-13	-15.54	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-46.62	2.63	27.28	-21.97	-13	-8.97	Horizontal
1430.6	-52.55	2.63	27.28	-27.90	-13	-14.90	Vertical
2145.9	-47.58	2.88	27.60	-22.86	-13	-9.86	Vertical
2145.9	-53.62	2.88	27.60	-28.90	-13	-15.90	Horizontal
204.1	-41.24	1.61	18.00	-24.85	-13	-11.85	Vertical
371.6	-37.81	1.45	15.49	-23.78	-13	-10.78	Horizontal

QPSK EIRP POWER FOR LTE BAND 12 (10MHZ BANDWIDTH)

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-48.73	2.61	27.26	-24.08	-13	-11.08	Horizontal
1408.0	-44.47	2.61	27.26	-19.82	-13	-6.82	Vertical
2112.0	-48.19	2.87	27.58	-23.48	-13	-10.48	Vertical
2112.0	-52.02	2.87	27.58	-27.31	-13	-14.31	Horizontal
184.3	-37.40	1.31	16.97	-21.74	-13	-8.74	Vertical
243.1	-34.51	1.65	16.70	-19.46	-13	-6.46	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-48.12	2.61	27.28	-23.45	-13	-10.45	Horizontal
1415.0	-49.93	2.61	27.28	-25.26	-13	-12.26	Vertical
2122.5	-46.80	2.87	27.59	-22.08	-13	-9.08	Vertical
2122.5	-51.03	2.87	27.59	-26.31	-13	-13.31	Horizontal
179.0	-38.04	1.72	17.99	-21.77	-13	-8.77	Vertical
300.1	-36.38	1.73	17.94	-20.17	-13	-7.17	Horizontal
Test Results for High Channel 711MHz							
1422.0	-52.00	2.62	27.28	-27.34	-13	-14.34	Horizontal
1422.0	-53.56	2.62	27.28	-28.90	-13	-15.90	Vertical
2133.0	-51.94	2.87	27.60	-27.21	-13	-14.21	Vertical
2133.0	-50.02	2.87	27.60	-25.29	-13	-12.29	Horizontal
194.3	-42.47	1.58	15.93	-28.12	-13	-15.12	Vertical
309.8	-37.51	1.36	15.59	-23.28	-13	-10.28	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.6 LTE BAND 17

QPSK EIRP POWER FOR LTE BAND 17 (5MHZ BANDWIDTH)

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-53.22	2.61	27.28	-28.55	-13	-15.55	Horizontal
1413.0	-44.82	2.61	27.28	-20.15	-13	-7.15	Vertical
2119.5	-51.04	2.87	27.59	-26.32	-13	-13.32	Vertical
2119.5	-49.67	2.87	27.59	-24.95	-13	-11.95	Horizontal
180.5	-34.35	1.71	16.15	-19.91	-13	-6.91	Vertical
364.6	-39.62	1.41	17.32	-23.71	-13	-10.71	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-44.22	2.62	27.30	-19.54	-13	-6.54	Horizontal
1420.0	-49.30	2.62	27.30	-24.62	-13	-11.62	Vertical
2130.0	-49.08	2.87	27.62	-24.33	-13	-11.33	Vertical
2130.0	-49.27	2.87	27.62	-24.52	-13	-11.52	Horizontal
195.2	-39.77	1.42	15.25	-25.95	-13	-12.95	Vertical
462.8	-35.78	1.36	17.19	-19.95	-13	-6.95	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-46.88	2.66	27.28	-22.26	-13	-9.26	Horizontal
1427.0	-49.09	2.66	27.28	-24.47	-13	-11.47	Vertical
2140.5	-47.88	2.88	27.60	-23.16	-13	-10.16	Vertical
2140.5	-50.05	2.88	27.60	-25.33	-13	-12.33	Horizontal
207.2	-36.83	1.32	17.29	-20.86	-13	-7.86	Vertical
283.7	-34.27	1.72	16.89	-19.10	-13	-6.10	Horizontal

QPSK EIRP POWER FOR LTE BAND 17 (10MHZ BANDWIDTH)

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-48.58	2.62	27.30	-23.90	-13	-10.90	Horizontal
1418.0	-51.98	2.62	27.30	-27.30	-13	-14.30	Vertical
2127.0	-51.73	2.87	27.62	-26.98	-13	-13.98	Vertical
2127.0	-52.24	2.87	27.62	-27.49	-13	-14.49	Horizontal
212.6	-43.29	1.35	16.91	-27.73	-13	-14.73	Vertical
312.3	-38.30	1.62	16.31	-23.61	-13	-10.61	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-48.99	2.62	27.30	-24.31	-13	-11.31	Horizontal
1420.0	-45.63	2.62	27.30	-20.95	-13	-7.95	Vertical
2130.0	-51.13	2.87	27.62	-26.38	-13	-13.38	Vertical
2130.0	-52.40	2.87	27.62	-27.65	-13	-14.65	Horizontal
179.0	-41.42	1.51	17.14	-25.79	-13	-12.79	Vertical
403.1	-43.25	1.77	16.88	-28.14	-13	-15.14	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.28	2.62	27.30	-24.60	-13	-11.60	Horizontal
1422.0	-48.67	2.62	27.30	-23.99	-13	-10.99	Vertical
2133.0	-47.60	2.87	27.62	-22.85	-13	-9.85	Vertical
2133.0	-52.12	2.87	27.62	-27.37	-13	-14.37	Horizontal
181.3	-43.25	1.78	15.95	-29.08	-13	-16.08	Vertical
332.2	-42.21	1.34	17.95	-25.61	-13	-12.61	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.7 LTE BAND 19

QPSK EIRP POWER FOR LTE BAND 19 (5MHZ BANDWIDTH)

Test Results for Low Channel 832.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1665.0	-44.78	4.26	29.80	-19.24	-13	-6.24	Horizontal
1665.0	-44.71	4.26	29.80	-19.17	-13	-6.17	Vertical
2497.5	-52.79	5.36	35.84	-22.31	-13	-9.31	Vertical
2497.5	-53.40	5.36	35.84	-22.92	-13	-9.92	Horizontal
207.2	-34.94	1.68	16.04	-20.58	-13	-7.58	Vertical
395.3	-43.13	1.78	17.74	-27.17	-13	-14.17	Horizontal
Test Results For Mid Channel 837.5MHz							
1675.0	-50.34	4.28	30.00	-24.62	-13	-11.62	Horizontal
1675.0	-47.63	4.28	30.00	-21.91	-13	-8.91	Vertical
2512.5	-51.61	5.41	35.86	-21.16	-13	-8.16	Vertical
2512.5	-50.79	5.41	35.86	-20.34	-13	-7.34	Horizontal
197.8	-43.75	1.72	17.69	-27.78	-13	-14.78	Vertical
421.7	-36.50	1.62	16.02	-22.09	-13	-9.09	Horizontal
Test Results for High Channel 842.5MHz							
1685.0	-49.09	4.31	30.01	-23.39	-13	-10.39	Horizontal
1685.0	-44.48	4.31	30.01	-18.78	-13	-5.78	Vertical
2527.5	-44.91	5.43	35.86	-14.48	-13	-1.48	Vertical
2527.5	-52.50	5.43	35.86	-22.07	-13	-9.07	Horizontal
195.4	-42.61	1.80	16.69	-27.72	-13	-14.72	Vertical
435.7	-35.52	1.75	16.66	-20.62	-13	-7.62	Horizontal

QPSK EIRP POWER FOR LTE BAND 19 (15MHZ BANDWIDTH)

Test Results for Low Channel 837.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1675.0	-46.14	4.29	29.80	-20.63	-13	-7.63	Horizontal
1675.0	-45.87	4.29	29.80	-20.36	-13	-7.36	Vertical
2512.5	-53.78	5.38	35.84	-23.32	-13	-10.32	Vertical
2512.5	-52.19	5.38	35.84	-21.73	-13	-8.73	Horizontal
182.1	-43.61	1.57	17.26	-27.92	-13	-14.92	Vertical
335.6	-43.36	1.78	16.35	-28.79	-13	-15.79	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + ARpl(dBm)$

. Over Limit = : $P_{Mea}(dBm) - Limit(dBm)$

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.7 LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4997.0	-60.73	5.13	35.81	-30.05	-25	-5.05	Horizontal
4997.0	-64.45	5.13	35.81	-33.77	-25	-8.77	Vertical
7495.5	-62.45	5.42	36.85	-31.02	-25	-6.02	Vertical
7495.5	-63.96	5.42	36.85	-32.53	-25	-7.53	Horizontal
183.3	-44.67	1.56	17.97	-28.26	-25	-3.26	Vertical
261.3	-54.10	1.33	15.11	-40.32	-25	-15.32	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-64.52	5.16	35.82	-33.86	-25	-8.86	Horizontal
5186.0	-62.03	5.16	35.82	-31.37	-25	-6.37	Vertical
7779.0	-64.75	5.53	36.85	-33.43	-25	-8.43	Vertical
7779.0	-61.99	5.53	36.85	-30.67	-25	-5.67	Horizontal
206.1	-52.88	1.77	16.17	-38.47	-25	-13.47	Vertical
305.3	-44.62	1.63	15.21	-31.04	-25	-6.04	Horizontal
Test Results for High Channel 2687.5MHz							
5375.0	-62.62	5.23	35.83	-32.02	-25	-7.02	Horizontal
5375.0	-63.93	5.23	35.83	-33.33	-25	-8.33	Vertical
8062.5	-61.68	5.62	36.87	-30.43	-25	-5.43	Vertical
8062.5	-59.21	5.62	36.87	-27.96	-25	-2.96	Horizontal
179.0	-52.72	1.58	17.56	-36.74	-25	-11.74	Vertical
355.8	-52.25	1.45	16.58	-37.12	-25	-12.12	Horizontal

QPSK EIRP POWER FOR LTE BAND 41 (20MHZ BANDWIDTH)

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5012.0	-64.26	5.23	35.82	-33.67	-25	-8.67	Horizontal
5012.0	-63.26	5.23	35.82	-32.67	-25	-7.67	Vertical
7518.0	-59.91	5.67	36.86	-28.72	-25	-3.72	Vertical
7518.0	-60.55	5.67	36.86	-29.36	-25	-4.36	Horizontal
196.9	-52.37	1.55	15.76	-38.16	-25	-13.16	Vertical
460.7	-54.93	1.62	15.44	-41.11	-25	-16.11	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-63.18	5.16	35.82	-32.52	-25	-7.52	Horizontal
5186.0	-61.65	5.16	35.82	-30.99	-25	-5.99	Vertical
7779.0	-60.06	5.53	36.85	-28.74	-25	-3.74	Vertical
7779.0	-62.96	5.53	36.85	-31.64	-25	-6.64	Horizontal
191.2	-48.02	1.58	16.84	-32.76	-25	-7.76	Vertical
283.7	-52.66	1.61	17.64	-36.63	-25	-11.63	Horizontal
Test Results for High Channel 2680MHz							
5360.0	-59.13	5.24	35.83	-28.54	-25	-3.54	Horizontal
5360.0	-61.17	5.24	35.83	-30.58	-25	-5.58	Vertical
8040.0	-64.01	5.70	36.88	-32.83	-25	-7.83	Vertical
8040.0	-59.50	5.70	36.88	-28.32	-25	-3.32	Horizontal
181.9	-46.91	1.48	16.84	-31.55	-25	-6.55	Vertical
405.4	-46.52	1.59	17.64	-30.47	-25	-5.47	Horizontal

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.4V, Normal, DC 3.8V and High voltage, DC 4.2V.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to -30°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

- ☐ LTE Band 24/5/7/12/17/19/41

RESULTS

See the following pages.

10.1 LTE BAND 2

Band 2 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1880	12.8	0.006824	2.5
3.8	1880	14.0	0.007421	2.5
4.2	1880	13.4	0.007151	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.1	0.006971	2.5
Extreme (50C)	1880	11.2	0.005941	2.5
Extreme (40C)	1880	14.0	0.007448	2.5
Extreme (30C)	1880	13.8	0.007322	2.5
Extreme (10C)	1880	13.8	0.007347	2.5
Extreme (0C)	1880	11.7	0.006206	2.5
Extreme (-10C)	1880	13.3	0.007050	2.5
Extreme (-20C)	1880	13.9	0.007405	2.5
Extreme (-30C)	1880	14.7	0.007794	2.5

Band 2 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1880	9.5	0.005057	2.5
3.8	1880	8.8	0.004691	2.5
4.2	1880	8.4	0.004476	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.6	0.005110	2.5
Extreme (50C)	1880	8.7	0.004644	2.5
Extreme (40C)	1880	8.2	0.004346405	2.5
Extreme (30C)	1880	8.8	0.004706174	2.5
Extreme (10C)	1880	9.3	0.0049556	2.5
Extreme (0C)	1880	7.8	0.004167234	2.5
Extreme (-10C)	1880	8.6	0.004584798	2.5
Extreme (-20C)	1880	8.4	0.004494048	2.5
Extreme (-30C)	1880	7.9	0.004208195	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.2 LTE BAND 4

Band 4 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1732.5	9.1	0.005239	2.5
3.8	1732.5	8.9	0.005153	2.5
4.2	1732.5	8.7	0.005008	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.1	0.004650	2.5
Extreme (50C)	1732.5	8.6	0.004964	2.5
Extreme (40C)	1732.5	7.8	0.004517	2.5
Extreme (30C)	1732.5	5.6	0.003221	2.5
Extreme (10C)	1732.5	7.5	0.004324	2.5
Extreme (0C)	1732.5	9.7	0.005587	2.5
Extreme (-10C)	1732.5	8.7	0.005018	2.5
Extreme (-20C)	1732.5	6.9	0.003963	2.5
Extreme (-30C)	1732.5	8.9	0.005117	2.5

Band 4 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1732.5	10.2	0.005861	2.5
3.8	1732.5	9.2	0.005338	2.5
4.2	1732.5	8.4	0.004851	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	10.2	0.005871	2.5
Extreme (50C)	1732.5	8.9	0.005117	2.5
Extreme (40C)	1732.5	7.7	0.004418	2.5
Extreme (30C)	1732.5	8.5	0.004924	2.5
Extreme (10C)	1732.5	9.4	0.005408	2.5
Extreme (0C)	1732.5	7.9	0.004580	2.5
Extreme (-10C)	1732.5	9.2	0.005331	2.5
Extreme (-20C)	1732.5	9.0	0.005201	2.5
Extreme (-30C)	1732.5	7.8	0.004517	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.3 LTE BAND 5

Band 5 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	836.5	5.9	0.006999	2.5
3.8	836.5	6.2	0.007445	2.5
4.2	836.5	4.8	0.005780	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.8	0.006878	2.5
Extreme (50C)	836.5	6.0	0.007133	2.5
Extreme (40C)	836.5	6.1	0.007347	2.5
Extreme (30C)	836.5	6.9	0.008230	2.5
Extreme (10C)	836.5	5.9	0.007038	2.5
Extreme (0C)	836.5	5.7	0.006778	2.5
Extreme (-10C)	836.5	5.3	0.006301	2.5
Extreme (-20C)	836.5	6.0	0.007222	2.5
Extreme (-30C)	836.5	6.5	0.007817	2.5

Band 5 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	836.5	5.3	0.006375	2.5
3.8	836.5	7.1	0.008476	2.5
4.2	836.5	4.4	0.005202	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.7	0.006834	2.5
Extreme (50C)	836.5	6.4	0.007615	2.5
Extreme (40C)	836.5	6.2	0.007355	2.5
Extreme (30C)	836.5	6.5	0.007801	2.5
Extreme (10C)	836.5	5.8	0.006978	2.5
Extreme (0C)	836.5	4.8	0.005744	2.5
Extreme (-10C)	836.5	5.7	0.006836	2.5
Extreme (-20C)	836.5	5.9	0.007054	2.5
Extreme (-30C)	836.5	6.5	0.007779	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.4 LTE BAND 7

Band 7 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2535	10.0	0.003952	2.5
3.8	2535	8.7	0.003447	2.5
4.2	2535	8.0	0.003168	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.3	0.003654	2.5
Extreme (50C)	2535	8.6	0.003375	2.5
Extreme (40C)	2535	8.5	0.003364	2.5
Extreme (30C)	2535	9.0	0.003551	2.5
Extreme (10C)	2535	8.5	0.003355	2.5
Extreme (0C)	2535	8.5	0.003372	2.5
Extreme (-10C)	2535	9.3	0.003650	2.5
Extreme (-20C)	2535	8.7	0.003416	2.5
Extreme (-30C)	2535	7.9	0.003120	2.5

Band 7 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2535	6.9	0.002722	2.5
3.8	2535	6.4	0.002527	2.5
4.2	2535	5.7	0.002260	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.2	0.002044	2.5
Extreme (40C)	2535	5.5	0.002177	2.5
Extreme (30C)	2535	6.9	0.002708	2.5
Extreme (10C)	2535	5.5	0.002151	2.5
Extreme (0C)	2535	5.6	0.002194	2.5
Extreme (-10C)	2535	5.5	0.002172	2.5
Extreme (-20C)	2535	6.4	0.002522	2.5
Extreme (-30C)	2535	6.1	0.002425	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.5 LTE BAND 12

Band 12 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	8.5	0.012031	2.5
3.8	707.5	9.9	0.013962	2.5
4.2	707.5	8.5	0.012056	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.1	0.012906	2.5
Extreme (50C)	707.5	7.0	0.009910	2.5
Extreme (40C)	707.5	7.8	0.011028	2.5
Extreme (30C)	707.5	8.6	0.012200	2.5
Extreme (10C)	707.5	7.0	0.009865	2.5
Extreme (0C)	707.5	8.6	0.012118	2.5
Extreme (-10C)	707.5	8.6	0.012138	2.5
Extreme (-20C)	707.5	8.7	0.012362	2.5
Extreme (-30C)	707.5	8.3	0.011727	2.5

Band 12 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	7.2	0.010185	2.5
3.8	707.5	8.7	0.012317	2.5
4.2	707.5	7.2	0.010233	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.1	0.012923	2.5
Extreme (50C)	707.5	8.4	0.011846	2.5
Extreme (40C)	707.5	8.7	0.012287	2.5
Extreme (30C)	707.5	8.1	0.011450	2.5
Extreme (10C)	707.5	8.7	0.012266	2.5
Extreme (0C)	707.5	7.8	0.011019	2.5
Extreme (-10C)	707.5	7.3	0.010295	2.5
Extreme (-20C)	707.5	9.5	0.013400	2.5
Extreme (-30C)	707.5	8.3	0.011722	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.6 LTE BAND 17

Band 17 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	710.0	9.7	0.013710	2.5
3.8	710.0	9.0	0.012705	2.5
4.2	710.0	8.1	0.011365	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.7	0.013725	2.5
Extreme (50C)	710.0	9.1	0.012800	2.5
Extreme (40C)	710.0	7.8	0.011010	2.5
Extreme (30C)	710.0	8.7	0.012323	2.5
Extreme (10C)	710.0	9.0	0.012693	2.5
Extreme (0C)	710.0	8.5	0.011936	2.5
Extreme (-10C)	710.0	9.3	0.013104	2.5
Extreme (-20C)	710.0	8.6	0.012064	2.5
Extreme (-30C)	710.0	8.0	0.011260	2.5

Band 17 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	710.0	9.7	0.013629	2.5
3.8	710.0	9.2	0.012900	2.5
4.2	710.0	8.7	0.012245	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.5	0.013358	2.5
Extreme (50C)	710.0	8.6	0.012050	2.5
Extreme (40C)	710.0	8.0	0.011317	2.5
Extreme (30C)	710.0	8.8	0.012462	2.5
Extreme (10C)	710.0	8.4	0.011798	2.5
Extreme (0C)	710.0	8.5	0.011988	2.5
Extreme (-10C)	710.0	9.0	0.012703	2.5
Extreme (-20C)	710.0	9.0	0.012633	2.5
Extreme (-30C)	710.0	8.1	0.011427	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.7 LTE BAND 19

Band 19 QPSK, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1745	6.9	0.003935	2.5
3.8	1745	7.4	0.004220	2.5
4.2	1745	7.0	0.004035	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	5.1	0.002897	2.5
Extreme (50C)	1745	7.2	0.004124	2.5
Extreme (40C)	1745	7.0	0.004009	2.5
Extreme (30C)	1745	6.9	0.003954	2.5
Extreme (10C)	1745	7.8	0.004477	2.5
Extreme (0C)	1745	6.9	0.003945	2.5
Extreme (-10C)	1745	5.6	0.003189	2.5
Extreme (-20C)	1745	6.3	0.003635	2.5
Extreme (-30C)	1745	5.5	0.003173	2.5

Band 19 16QAM, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1745	8.1	0.004646	2.5
3.8	1745	7.3	0.004166	2.5
4.2	1745	9.7	0.005581	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	8.3	0.004743	2.5
Extreme (50C)	1745	7.7	0.004420	2.5
Extreme (40C)	1745	8.1	0.004625	2.5
Extreme (30C)	1745	8.3	0.004740	2.5
Extreme (10C)	1745	9.0	0.005139	2.5
Extreme (0C)	1745	6.6	0.003772	2.5
Extreme (-10C)	1745	8.7	0.005010	2.5
Extreme (-20C)	1745	8.1	0.004620	2.5
Extreme (-30C)	1745	5.9	0.003405	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.7 LTE BAND 41

Band 41 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2593	10.0	0.003844	2.5
3.8	2593	9.2	0.003540	2.5
4.2	2593	8.1	0.003115	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	9.6	0.003696	2.5
Extreme (50C)	2593	9.0	0.003454	2.5
Extreme (40C)	2593	8.7	0.003342	2.5
Extreme (30C)	2593	8.7	0.003365	2.5
Extreme (10C)	2593	8.1	0.003116	2.5
Extreme (0C)	2593	8.4	0.003242	2.5
Extreme (-10C)	2593	9.4	0.003609	2.5
Extreme (-20C)	2593	9.2	0.003532	2.5
Extreme (-30C)	2593	8.8	0.003409	2.5

Band 41 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2593	6.9	0.002661	2.5
3.8	2593	6.0	0.002321	2.5
4.2	2593	5.7	0.002196	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	6.9	0.002661	2.5
Extreme (50C)	2593	5.2	0.002010	2.5
Extreme (40C)	2593	5.8	0.002219	2.5
Extreme (30C)	2593	7.1	0.002748	2.5
Extreme (10C)	2593	5.5	0.002110	2.5
Extreme (0C)	2593	5.5	0.002103	2.5
Extreme (-10C)	2593	5.5	0.002105	2.5
Extreme (-20C)	2593	5.7	0.002215	2.5
Extreme (-30C)	2593	5.8	0.002248	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

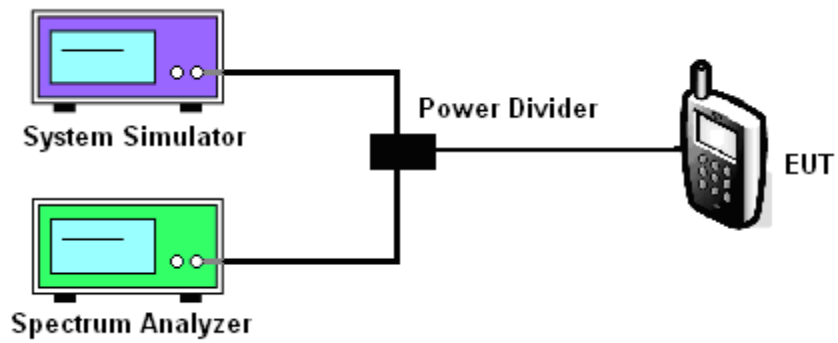
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For LTE operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



MODES TESTED

- ☐ LTE Band 2/4/5/7/12/17/19/41

Test data reference attachment.

----END OF REPORT----